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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,500	10/16/2003	Kia Silverbrook	ZF180US	5381

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AUSTRALIA

EXAMINER

GORDON, RAQUEL YVETTE

ART UNIT PAPER NUMBER

2853

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/685,500

Applicant(s)

SILVERBROOK, KIA

Examiner

Raquel Y. Gordon

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2002 (this action).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 9 is/are rejected.
- 7) ☒ Claim(s) 2-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☒ Certified copies of the priority documents have been received in Application No. 09/835,472.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/16/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Silverbrook (US 2004/0008237 A1).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Silverbrook teaches:

1. A method of fabricating a printhead chip that incorporates a plurality of nozzle arrangements (¶ 1676), each nozzle arrangement having nozzle chamber walls that define a nozzle chamber and an ink ejection port bounded by a rim (¶ 1673), the method comprising the steps of: depositing a sacrificial layer on a substrate having drive circuitry formed on the substrate (¶¶ 1616, 1620, 1621, 1665, 1673); etching the sacrificial layer to define deposition zones for the nozzle chamber walls and the rim (¶ 1580); depositing a conformal layer of structural material on the sacrificial layer;

planarizing the conformal layer to a predetermined depth to define each ink ejection port bounded by its respective rim (§1584); and etching away the sacrificial layer (§1675);

9. A printer which incorporates at least one printhead chip fabricated according to the method as claimed in claim 1 (§ 0293).

Allowable Subject Matter

Claims 2-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Indicating Allowable subject matter

The following is a statement of reasons for the indication of allowable subject matter: The following claim combinations are not taught by the prior art:

2. A method as claimed in claim 1 which includes the steps of: carrying out an integrated circuit fabrication process on the substrate to form the drive circuitry; depositing protective layers on the substrate to protect the drive circuitry, depositing a sacrificial material on the substrate to support a plurality of actuators during formation of the actuators; etching the protective layers and the sacrificial material to define a plurality of connection points between the actuators and the drive circuitry; and **forming a plurality of actuators on the substrate using a micro-electromechanical systems fabrication technique such that each actuator is operatively positioned with**

respect to one respective nozzle chamber and is connected to the drive circuitry with the connection points to be displaced upon receipt of an electrical signal from the drive circuitry, thereby to displace ink from the ink ejection port, prior to depositing said sacrificial layer.

3. A method as claimed in claim 2, in which the step of forming the plurality of actuators includes the step of forming a plurality of actuating portions connected to the drive circuitry and corresponding **ink displacement members** extending from respective actuating portions into a region to be bounded by the nozzle chamber walls.

4. A method as claimed in claim 2, which includes the step of etching the sacrificial layer to define a deposition zone for **a plurality of protective shells** such that, when the sacrificial material is removed, the conformal layer of structural material defines a plurality of protective shells with each actuator being positioned within a respective protective shell.

5. A method as claimed in claim 3, in which the step of forming the actuating portions includes the steps of: depositing a layer of resistive heating material such that the heating material makes electrical contact with the drive circuitry via the connection points; etching the layer of heating material to define a plurality of electrical resistive heating circuits; and depositing a layer of resiliently flexible material on the layer of heating material.

6. A method as claimed in claim 5, in which the steps of depositing the layer of heating material and etching the layer of heating material are such that they result in the formation of an arm that extends from each respective heating circuit and the displacement member that is positioned on each respective arm.

7. A method as claimed in claim 6, which includes the step of etching discontinuities in the layer of heating material such that the displacement members are electrically isolated from the respective heating circuits.

8. A method as claimed in claim 5, in which the heating material is titanium nitride and the resiliently flexible material is glass.

Claims 5-6 are objected to as being dependent on claims which are indicated as being allowable.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Raquel Y. Gordon, whose telephone number is (571) 272-2145. The Examiner can normally be reached on M Tu Th and F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. A fax number is available upon request.

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Any inquiry of a general nature or relating to the status of this application or proceeding may be directed to the Examiner or Supervisor.

A handwritten signature in black ink, appearing to read 'Raquel Y. Gordon', is written over the typed name.

Raquel Y. Gordon
Primary Examiner
Art Unit 2853
August 5, 2004

**RAQUEL GORDON
PRIMARY EXAMINER**